

Remarks/Arguments

Independent Claim 1 recites "the tapered portion includes an angled surface formed at an angle ranging from about 2-8 degrees with respect to the substantially flat portion; and wherein thickness of the finger between the substantially flat portion of the bottom surface ranges from about 1.8-1.95 mm. " Independent claim 14 recites "an end effector having at least one extension wherein each extension includes a top surface and a bottom surface and the extension having a free end, and the top surface having a substantially flat portion, and a tapered portion extending from the substantially flat portion towards the free end, and wherein the thickness of the extension between the substantially flat portion and the bottom surface is about 0.05-0.2 mm less than the opening between the adjacently positioned semiconductor wafers in the cassette housing." As such, Applicant's claims an end effector extension (finger or blade) with an increased thickness over prior art end effectors. The increase in thickness of the finger portion of the end effector decreases the likelihood of the finger being broken off if the finger accidentally strikes wafer processing equipment or a wafer. See the instant application in the last two sentences of paragraph 33. The prior art relied on by the Examiner fails to establish a relationship between the thickness of the end effector finger, and a tapered free end to solve the problem of breaking of end effector fingers during wafer processing.

Claims 1 and 4-18 have been rejected under 35 USC §103(a) as being unpatentable over Shamlou et al. Shamlou et al. has disclosed a wafer handling device having a rear shoe 20 that is formed so as to have a leading edge 122 that is tapered at an angle that permits the wafer to slide into a holding pocket between the front shoe 116 and the rear shoe 120 even when expansion differences between the handling blade and the semi conductor substrate would otherwise cause

a misfit. See the paragraph bridging Columns 8 and 9. Shamlou et al. failed to disclose or suggest any relationship between the ability to have an end effector blade or finger with a tapered free end and an increase in the thickness of the blade or finger to prevent damage to the blade or finger during wafer handling. Applicants' claim 1 recites "the tapered portion includes an angled surface formed at an angle ranging from about 2-8 degrees with respect to the substantially flat portion; and wherein thickness of the finger between the substantially flat portion of the bottom surface ranges from about 1.8-1.95 mm" which is not rendered obvious by Shamlou et al.

Shamlou et al teaches that the leading edge of the of the end effector blade should be formed at an angle of 10-30 degree and thus teaches away from Applicant's claim 1 that recites an angled surface formed at an angle ranging from 2-8 degrees. **The rejection fails to provide any motivation** to go against the teaching of Shamlou et al. Nor does the rejection provide a rational of why one would by motivation to reduce the angle of the tapered portion as opposed to increasing the angle above 30 degrees. The Examiner has failed to establish a prima facie case with respect to independent claim 1.

With respect to independent claim 14, the rejection based on Shamlou et al is fatally defect for failing to point out where any of the claim limitations are found in the prior art -- not to mention failing to provide any motivation of how and why the prior art should be modified to arrive at Applicant's claim 14. For example, the rejection fails to identify where the limitations "and wherein the thickness of the extension between the substantially flat portion and the bottom surface is about 0.05-0.2 mm less than the opening between the adjacently positioned semiconductor wafers in the cassette housing" are found in the prior art or why such limitations would be obvious in view of the prior art. Shamlou et al was concern about prevent damage to wafer, and was not facing the problem of preventing end effector blade and fingers from being

broken. When the prior fails to recognize the problem facing the inventor it cannot suggest the solution thereto. No prima facie case of obviousness has been established with respect to claim 14, and the rejection of claim 14 in view of Shamlou et al should be withdrawn.

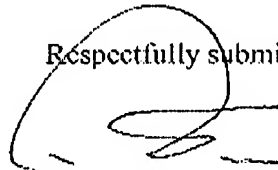
Claims 1 and 4-18 have been rejected under 35 USC 103(a) as being unpatentable over Shamlou et al in view of Chen et al. The Examiner maintains that the lower limit (10 degrees) of the range of the angle of the wafer blade taught by Shamlou et al is "approximate" of that claimed. The Examiner relies on Chen et al for the generalized statement that the dimensions of the wafer blade may be adjusted. However, the Examiner attention is directed to Chen et al at column 3, lines 3-13 which states "If the wafer diameter is increased, or decreased, the dimensions of the wafer support blade can be adjusted without exercise of the invention. The taper of the blade can be varied." Thus, Chen et al teaches that the dimensions of the wafer support may be change only in response to changes in the dimension s of the wafer, and does not suggest a solution to the problem of breaking end effector fingers. Further, Chen et al fails to suggest how the support blade dimensions should be modified. Furthermore, Chen et al actually teaches away from Applicant's claimed invention. The Examiner attention is respectfully directed to Figure 2 of Chen et al which shows the thickness for various portion of the blade as 1.5 mm, 1.0 mm, and 0.65 mm. Thus, Chen et al teaches that the upper limit of the thickness of the blade should be 1.5 mm, which teaches way from Applicant's claimed range of 1.8-1.95 mm in claim 1. No prima facie case of obviousness has been established with respect to claim 1.

With respect to claim 14, the rejection based on Shamlou et al and Chen et al is fatally defect for failing to point out where any of the claim limitations are found in the prior art – not to mention failing to provide any motivation of how and why the prior art should be modified to arrive at Applicant's claim 14. For example, the rejection fails to identify where the limitations

"and wherein the thickness of the extension between the substantially flat portion and the bottom surface is about 0.05-0.2 mm less than the opening between the adjacently positioned semiconductor wafers in the cassette housing" are found in the prior art or why such limitations would be obvious in view of the prior art. The rejection improperly ignores claim limitations and therefore no prima facie case of obviousness has been established. The rejection of claim 14 based on Shamlou et al and Chen et al should be withdrawn.

In view of the above remarks, Applicants respectfully request reconsideration and allowance of the claims now in the case.

Respectfully submitted



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